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Mr. Sam Borries
On-Scene Coordinator
USEPA Region 5
77 West Jackson Boulevard (SE-5J)
Chicago, IL 60604-3590

Sediments

Subject
Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site
Former Plainwell Impoundment Time-Critical Removal Action
Final Construction Completion Report
Response to USEPA Comments

Date
January 14, 2010

Contact
Steve Garbaciak

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312.332.4937 x12

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Our ref
B0064530.0000 00675

Dear Mr. Borries:

ARCADIS, on behalf of Georgia-Pacific LLC (Georgia-Pacific), has prepared a formal response to United States Environmental Protection Agency (USEPA) comments on the Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Former Plainwell Impoundment Time-Critical Removal Action (TCRA) Final Construction Completion Report, submitted to USEPA in August 2009. USEPA submitted comments to ARCADIS and Georgia-Pacific on December 22, 2009. These comments incorporated comments in letters USEPA received from Michigan Department of Environmental Quality (MDEQ) and from the United States Fish and Wildlife Services (USFWS) on behalf of the natural resource trustees.

The attached response to comments document addresses the 21 comments as presented in the December 22, 2009 letter in numerical order. As agreed upon during the December 21, 2009 conference call between USEPA, MDEQ, Georgia-Pacific, and ARCADIS, a revised copy of the Final Construction Competition Report (CCR) is included with this submittal. This response to comments document and the revised CCR are provided with a request by ARCADIS and Georgia-Pacific for approval of the Final CCR pursuant to Paragraph 74 of the February 2007 Administrative Settlement Agreement and Order on Consent (AOC) for Removal Action (Docket No. V-W-07-C-863). Upon approval of this revised draft, the CCR will be finalized and resubmitted to USEPA.

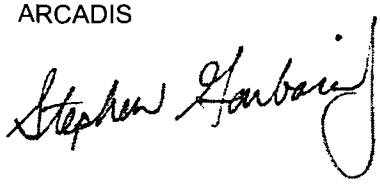
US EPA RECORDS CENTER REGION 5
406991

ARCADIS

If you have any questions, please do not hesitate to contact me.

Sincerely,

ARCADIS



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KALAMAZOO RIVER STUDY GROUP
ALLIED PAPER, INC./PORTAGE CREEK/KALAMAZOO RIVER SUPERFUND SITE

RESPONSE TO DECEMBER 22, 2009 USEPA COMMENTS
ON THE FORMER PLAINWELL IMPOUNDMENT TIME-CRITICAL REMOVAL ACTION
FINAL CONSTRUCTION COMPLETION REPORT – AUGUST 2009

✓ **USEPA Original Comment #1:**

Page 1-2, Section 1.3: In introductory paragraph of this section add, "Some of the design objectives, specifically, 2 and 11, will take additional time and monitoring in order to determine if they have been met."

Response:

ARCADIS has added text to the CCR that documents that required project elements were constructed as designed toward achieving Objectives 2 and 11; however, these objectives cannot be fully evaluated at this time. Neither the natural channel bed substrate nor stable cross sections were immediately re-established as a part of removal activities Instead, the channel was allowed to restore via a natural channel process. As stated in the Design Report, the geomorphic response following the dam removal should occur within a 1- to 5-year time period. Monitoring and maintenance activities will be conducted as described in Section 5.6 of the Design Report to evaluate the stability of restored banks and the development of upland and wetland habitats to meet vegetation performance standards. An adaptive management plan will be utilized if necessary to modify the restored banks. Section 1.4 has been added to the CCR to discuss construction and monitoring of constructed banks and channel as it relates to Objectives 2 and 11

USEPA Original Comment #2:

Section 1.3, Page 1-3: The CCR should clarify that Objective 4 was met only within the area of excavation, and the extent of excavation identified in the TCRA was based on existing field data for that area and was not field verified prior to finalization.

Response:

Objective 4 was accomplished within the area of excavation as defined by the approved Design Report. The text of Objective 4 was revised as follows:

Removal of PCB-contaminated soil in excess of 4 mg/kg PCBs from the river's northern floodplain on or near residential properties upstream of US 131, within the excavation boundaries specified in the Design Report, to the extent that the floodplain can be reasonably accessed

remove dont re-write objective

USEPA Original Comment #3:

Section 2.1, page 2-1. The CCR states that "ARCADIS documented that the TCRA was implemented in conformance with the approved work plan (the Design Report), [and] documented that the design objectives were met...." The CCR should clarify that Arcadis documented that the quantifiable aspects of the design were met; however, many of the design objectives (specifically Objectives 2 and 11) will take additional time and monitoring in order to determine if they have been met.

Response:
ARCADIS documented that work was performed in accordance with the approved Design Report and the objectives defined within. See response to comment #1. The text of Section 2.1 was revised as follows:

ARCADIS served as the Supervising Contractor for the project. In this role, ARCADIS implemented the TCRA on behalf of the KRSG and provided full-time construction management and construction quality assurance (CQA) services for the duration of removal activities. ARCADIS documented that the TCRA was implemented in conformance with the approved work plan (the Design Report), documented ~~that the~~ progress towards meeting design objectives ~~were met~~, recorded daily work activities, performed construction monitoring, directed subcontractors, provided health and safety oversight, and approved field changes.

USEPA Original Comment #4:

Section 3.5.1.1, Page 3-19: The CCR states that "Completion of soil excavation was confirmed through PCB soil confirmation sampling... "(The report should clarify that(" sampling was used to control completion of soil excavation in the vertical direction only Lateral extent of removal was determined beforehand using available data sets but was not affected by sampling results once in the field.) Many places in the report repeat the concept that the completion of excavation was verified with confirmation sampling. These sections of the report should be clarified to indicate that completion was confirmed vertically only. This comment is similar to Comment 2 above, and could be addressed at the beginning of section 3.5 with language that clarifies this concept.

Response:
As described in Section 1.2 of the Design Report, the former Plainwell Impoundment has been the focus of an extensive series of investigations by ARCADIS, MDNR, and USEPA since 1993. These investigations are summarized in Section 3.5 of the Final CCR. The following text was added to Section 3.5 of the CCR to summarize the investigation defined in Section 1 2 of the Design Report.

As described in Section 1.2 of the Design Report, the former Plainwell Impoundment has been the focus of an extensive series of investigations by ARCADIS, MDNR, and USEPA since 1993. The most recent PCB data were generated during a sampling effort conducted by ARCADIS in 2006. A variety of targeted studies of the impoundment were also conducted in 2005 and 2006 to further characterize Site topography, bank stability/disposition, flow hydrodynamics, equipment accessibility, and habitat quality. PCB concentrations of channel sediment, bank soil/sediment, and floodplain soil are summarized below.

- *More than 500 sediment samples have been collected from the channel of the Former Plainwell Impoundment since 1993. PCB concentrations ranged from non-detect to 222 mg/kg. 2006 sediment sampling efforts identified three specific mid-channel sediment deposits containing PCB concentrations greater than 50 mg/kg. These deposits are referred to as Mid-Channel Areas A, B, and C.*

- *More than 87 bank samples have been collected from the channel of the Former Plainwell Impoundment since 1993. PCB concentrations ranged from 0.2 to 120 mg/kg. Physical characterization assessments performed during the sampling investigations revealed that the river banks within the former impoundment were susceptible to erosion in many locations.*

- *The floodplain soils adjacent to the Kalamazoo River and lying within the former Plainwell Impoundment were comprised of approximately 75 acres of former sediments (averaging about 3.8 ft thick) that were exposed after MDNR drew down the impoundment in the early 1970s and dismantled the Plainwell Dam to its sill level in 1987. Prior to the TCRA, these upland floodplain soils were covered with vegetation and relatively stable, except for areas along the banks of the river, where the soils were subject to undercutting and erosion, causing them to slough off into the river More than 800 soil samples were collected throughout all investigations from the floodplain of the Former Plainwell Impoundment. PCB concentrations ranged from non-detect to 158 mg/kg. These data were also used to identify soils with PCB concentrations greater than 50 mg/kg that were subject to removal during the TCRA.*

The results of these investigations were used to define the horizontal and vertical extents of soil excavation. As defined in the Design Report, soil excavation was performed to these extents and confirmed as complete per requirements of the Design Report both horizontally and vertically within excavation areas using a combination of confirmation sampling and a real-time kinematic global positioning system (RTK GPS) equipped excavator. No additional changes to the report are necessary.

USEPA Original Comment #5:

Section 3 5.1.2, Page 3-19: The CCR states that "Excavation of sediment in the near-shore, mid-channel, and Islands 1 and 2 was confirmed by documenting the final surface elevation and comparing it to the neat line. .." Again, this confirmation was only vertical and not lateral. Additionally, given the fact that the work was conducted below water surface, professional judgment was required in many cases in determining if the goal had been met. Some discussion of the limitations and uncertainties associated with this confirmation process must be included.

Response:

See the response to Comment #4 for information regarding the extent of excavation.

Various techniques were used to capture as much sediment material targeted for excavation as reasonably possible. These techniques were developed throughout the project as a result of discussions between USEPA, MDEQ, Georgia-Pacific, and ARCADIS. The following text has been added to Section 3.5 of the Final CCR.

Excavation of submerged sediment was performed from upstream to downstream in each removal area. The excavator first removed individual buckets of material from the extent of the excavation, working back perpendicularly to the shore. Once this was completed, the excavator bucket scraped the exposed surface at a 45-degree angle from the extent of excavation back to the shore. This procedure was designed to remove any material that remained in between bucket excavation rows. USEPA and MDEQ utilized a combination of inspection methods to document and approve completion of excavation. These methods included review of RTK GPS data, physical probing, and use of an underwater camera.

USEPA Original Comment #6:

Section 3.5.1 2.1, Page 3-19: The CCR states that "The position of the excavator bucket as it removed sediments was recorded using a RTK [Real Time Kinematic] GPS [Global Positioning System]...." Replace recorded with "displayed"

Response:

The requested change has been made RTK GPS data was displayed in real-time and recorded according to the elevation collection protocol described in Section 3.5.1 2 3 of the CCR. The recorded coordinates are included in Appendix J of the Final CCR.

USEPA Original Comment #7:

Section 3 5.2 1, Page 3-21: The CCR indicates that "Near-shore sediments were excavated to that neat line, which was set well below PCB-containing sediment." The text as written is misleading because in some areas sediments were thin (predominantly in the upstream reaches of the impoundment), and so the distance to the contamination was less pronounced (i.e., the parent bed was not "well below" the extent of contamination). Remove the word "well" from the sentence.

Response:

The requested change has been made and the paragraph revised as follows:

A neat line was established to delineate the lateral and vertical extent of excavation. The vertical extent of the neat line was based on the interpolated pre-impoundment channel bottom elevations identified in the Design Report. The lateral extent of the neat line was based on material that was accessible from the bank. Near-shore sediments were excavated to that neat line, which was set ~~well~~ below PCB-containing sediment particularly in the downstream end of the former impoundment where the deepest sediment and highest near-shore sediment PCB concentrations were present.

Excavation depth or lateral extent was modified from the neat line established in the Design Report if either of the following conditions were present:

- *Near-shore sediment removal stopped at higher elevations than those indicated in the Design Report if pre-impoundment channel bottom materials (i.e., coarser and/or denser sediments) were encountered at higher elevations.*
- *Near-shore sediments were generally excavated 40 feet outward from the pre-construction top-of-bank. If this could not be conducted safely, if an obstruction was encountered, or if soft sediment was not present within the near-shore area, the 40-foot reach was modified. The regulatory agency onsite representatives were consulted to revise the extent of the near-shore sediments that were to be removed at that location.*

USEPA Original Comment #8:

Section 3.5.2.1, Page 3-22. The CCR indicates that the "efficiency" of the near-shore work was "confirmed" as it was being conducted. It is not clear what metric would be used to evaluate efficiency. Also, given the nature of the work below water surface, various protocols were developed as an attempt to consider the completion of the work The accuracy of these protocols (especially in the presence of soft sediment) was not verified. In upstream areas where shallow water depths allowed for direct evaluation, verification of the objective was more achievable. In areas of deeper water, it was difficult to determine if the objectives had been completely achieved. Additionally, an evaluation of "removal efficiency" was never formally conducted as implied. Evaluation of the conducted work was as much qualitative as quantitative. In the end, all parties agreed to the level of effort that was expended in the various areas, but the ambiguities in our ability to confirm what was achieved should be discussed.

Response:

Excavation of near shore sediments was verified at the time of excavation using RTK GPS data and completion of work in each area was approved by EPA and MDEQ based on the information provided (See added text in Response 5) Survey information is presented in Figure Series 4 and compared to the neat line as defined in the Design Report, using the data generation and review approach defined in the Design Report. RTK GPS data is included in Appendix J of the Final CCR. The subject sentence has been revised by deleting the words "efficiency of."

Further, although in accordance with the procedures defined in the Design Report, confirmation sampling of sediments was not utilized during the project. The post-construction sampling that was conducted at the end of each construction season provides useful data to document changes in PCB levels in the sediment removal areas. Results of the 2007 post-construction sampling were transmitted to USEPA and MDEQ on March 3, 2008 in the letter titled *Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Post-Removal Surface Sediment PCB Sampling Results for Removal Areas Completed in 2007*. Results of the 2008 post-construction sampling were transmitted to USEPA and MDEQ on September 29, 2009 in the letter titled *Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Post-Removal Surface Sediment PCB Sampling Results Former Plainwell Impoundment Time-Critical Removal Action.*

As discussed in the September 2009 letter, PCBs were not detected in 41% of the samples, and concentrations were less than 1.0 milligram per kilogram (mg/kg) in 81% of the samples The median PCB concentration was 0.061 mg/kg. The total PCB concentration was greater than 1.0 mg/kg in 15 samples, including a maximum observed concentration of 48 mg/kg. Additional analysis of the post-construction samples can be found in the September 2009 letter.

Based on the protocols used to document excavation (RTK GPS data and agency inspection methods) and the post-construction sampling data, ARCADIS feels confident that the near-shore sediment was excavated to the extent defined in the Design Report, and that the protocols used to verify completeness of excavation met and exceeded reasonable expectations.

USEPA Original Comment #9:

Section 3.5 2.1, Page 3-22: The CCR states "At the discretion of ARCADIS, near-shore sediments were over-excavated to remove sediments located between the neat line and pre-impoundment river bottom " EPA believes it would be more appropriate to replace this sentence with "As agreed to by all parties, additional material was removed in some areas to more closely approximate the actual parent bed material."

Response:

The requested change has been made.

USEPA Original Comment #10:

Section 3.5.2.2, Page 3-23: The CCR states that "Similar to near-shore sediment removal areas, once the prescribed neat line or former river bottom had been achieved, the position of the excavator bucket was recorded at pre-determined locations using the RTK GPS on the excavator " This is a complex area of the project and it will be difficult to clearly communicate all of the issues, but the text should be clarified to more accurately identify how the work was conducted. All parties agreed through a series of quantitative and qualitative evaluations that adequate work had been completed; however, the certainty of these judgments is overstated in the CCR and should be more accurately described.

Response:

See response to Comment 5 and 8.

USEPA Original Comment #11:

Section 3.5.2.3, Page 3-24: This section appears to combine two distinct concepts from the Design Report: Objective 2 - Cut-back and stabilization of river banks, and Objective 11 - Establishment of a stable river channel. It is clear from the details of the Design Report and from field observations following completion of the TCRA, that Objective 11 has not been met immediately "post-removal." The CCR should state this fact. See Comment 2

Response:

The components of the project as defined in the Design Report that are required to achieve Objectives 2 and 11 were constructed as documented in the CCR and monitoring is discussed in the Final CCR as described in the response to Comment 1.

USEPA Original Comment #12:

Section 3.5.2 3, Page 3-24: The CCR states "After the proposed excavation depths had been achieved, PCB-containing exposed sediments were sampled to verify that no PCB concentrations that exceeded the performance standard remained in the surface soil." Because the surface section (0-3 inches) of each sample was discarded, the sampling did not evaluate the surface soil. Remove "in the surface soil".

Response:

The requested change has been made.

USEPA Original Comment #13:

Section 3.5.2.3, Page 3-24: The CCR discusses the confirmation sampling and states "The random pattern was modified in the field (with concurrence of regulatory agency oversight personnel) if excessive spatial bias existed within a grid." True modification of the sampling did not occur until the second year. At the beginning of the third Sentence -add, *"During the second construction year,* the random pattern...."

Response:

According to the Design Report, the random pattern could be modified with concurrence of regularly agencies if excessive spatial bias existed within the grid, so the modification was possible in the first year of construction. However, the regulatory agencies did not utilize this modification until the second year of construction activities. Sections 3 5 2.3 and 3.5 2.4 of the Final CCR have been modified as requested.

USEPA Original Comment #14:

Section 3.5 2 4, Page 3-26, Second Paragraph· Text states that "Samples from within the selected grid nodes were collected using Lexan tubing from approximately 3 to 6 inches below the floor of the excavation to obtain an undisturbed sample *that had not come into contact with the toothed excavation equipment."* Toothed excavation equipment generally was not used for the excavation activities. Remove the portion of the sentence after "sample" (in italics).

Response:

The requested change has been made.

USEPA Original Comment #15:

Section 3.5.3.13, page 3-36: Remove first complete paragraph starting with, "Some wet material. " This paragraph does not belong in this section.

Response:

The paragraph has been revised as follows:

~~Some~~As stated in Section 3.5.3.12, some wet material excavated from Removal Area ~~13A~~6B was stockpiled in Upland Area ~~13A1 and allowed to dewater. The area was bermed to contain water.~~6B1. The dewatered sediment from Removal Area ~~13A~~6B and excavated soil from Upland Area ~~13A1~~6B1 were loaded into trucks for offsite disposal.

USEPA Original Comment #16:

Section 3.8, Page 3-64: TCRA Objective 11 on Page 1-4 of the Design Report indicates that the purpose of the removal was "Establishment of a stable river channel post-removal and re vegetation with native plant species." This report only describes bank stabilization activities (e g , bank slope cuts, softhard materials, vegetation) but does not describe the work that went into the design of a stable river channel. The CCR should describe separately the design details that went into ensuring a stable river channel in the post-removal period as well as the work related to stabilization of the banks.

Response:
Design of the stable river channel in the post-removal period and work related to stabilization of the banks is described in Section 2.7 of the Design Report and summarized in a new Section 1.4 of the Final CCR.

USEPA Original Comment #17:

Section 3.12, Page 3-79. The CCR identifies a cost for the activity. Details regarding costs for the project have never been shared with the agencies; as such, we have no way to evaluate the validity of the information. Given the certification required by the order, it is expected that the cost estimate provided in the CCR accurately reflects the actual amount spent by the KRSG for the work performed under the order.

Response:
Paragraph 20 of the AOC states that "The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the Settlement Agreement." The cost presented in Section 3.12 of the Final CCR accurately reflects the actual amount spent by the KRSG for the work performed under the AOC.

USEPA Original Comment #18:

Section 4.1, Page 4-1: The CCR states "If banks or habitats do not meet performance standards within the required monitoring period, adaptive management will be incorporated into maintenance activities to attain the performance standards so that the habitat or structure is accepted as a success." The sentence should be ended at "...adaptive management will be incorporated into maintenance activities." Concepts of success are subjective, given the original goal of developing a post-removal stable river channel that did not rely on extensive hard armoring. At this time, substantial additional hard armoring has already been put in place and is being contemplated for additional areas. It will be more appropriate to evaluate "success" following the completion of the monitoring period.

Response:
The requested change has been made.

USEPA Original Comment #19:

Section 4.5, Page 4-4. Change the reference regarding no additional sampling in the last sentence of the first paragraph as follows: "Post-construction sampling data were not used to determine the completeness of individual removal areas, and no additional *post-removal sediment samples will be required as part of the Time-Critical Removal Action* based on the results of the post-construction sampling."

Response:
The sentence has been modified as follows:
"Post-construction sampling data were not used to determine the completeness of individual removal areas, ~~and no additional sampling will be required based on the results of post-construction sampling,~~ but provided an indication of the resulting surface sediment PCB concentrations following completion of construction activities. No additional post-removal sediment samples will be required as a part of the TCRA ~~based on the results of the post-construction sampling.~~"

USEPA Original Comment #20:

Section 4.5, Page 4-4 Last sentence of the section - Explain the delay in submitting the second year post-removal sediment sampling results to EPA.

Response:

There was no required date for submittal of post-construction sampling results, and there has been no delay. Samples were collected in March 2009, analytical data was received from the laboratory in April 2009, and ARCADIS validated in May and June 2009. Validated post-construction sampling data was transmitted to USEPA in the *Allied Paper, Inc./Portage Creek/Kalamazoo River Superfund Site Supplemental Remedial Investigations/Feasibility Studies Monthly Progress Report Area 1 – Morrow Dam to Plainwell Dam (June 2009)*, dated July 15, 2009.

A letter summarizing the post-construction sampling results from 2007 and 2008 was transmitted to USEPA and MDEQ on September 29, 2009 in the letter titled *Allied Paper, Inc /Portage Creek/Kalamazoo River Superfund Site Post-Removal Surface Sediment PCB Sampling Results Former Plainwell Impoundment Time-Critical Removal Action.* The report has been revised to include this statement.

USEPA Original Comment #21:

Figures: A number of the figures have errors in the data values listed. All of these should be checked.

Figure 6.2 - Value for sample number K55270 should be 23
Value for sample number K55295 should be 0.52

Figure 6.3 - Value for sample number K55267 should be 6.3
Value for sample number K55292 should be 0.39
Value for sample number K55298 should be 0.57

Figure 6 4 - Value for sample number K55274 should be 0 36

Figure 6.7 - Value for sample number TS20075 should be 0.33

Response:

The figures have been revised accordingly.